

# ASSESSING TEACHING EFFECTIVENESS IN EXTENSION EDUCATION DISCIPLINE THROUGH STUDENT RATINGS OF TEACHERS' ATTRIBUTES IN AGRICULTURAL UNIVERSITIES OF NORTHERN INDIA

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## ABSTRACT

*The discipline 'Extension Education' has established itself as a profession and discipline with three important pillars: teaching, research and extension service. In the last two decades, the agricultural situation in India has witnessed a paradigm shift in the light of India's signing the General Agreement on Trade and Tariff (GATT) in 1994. Consequently the job market for extension trained professional today, now demand quite different competencies than were required in the 1960s, which in turn can be inculcated by diverse teaching methodologies and updated subject knowledge of teachers for ultimately achieving overall teaching effectiveness. Therefore, the attributes of teachers contributing towards teaching effectiveness becomes very important for achieving the same. This study examines the perception of 210 post graduate students (M. Sc. and Ph. D.) of Extension Education discipline of 10 northern agricultural universities towards teachers' attributes of the teachers who taught them. Accordingly, teachers are categorized based on scores of attributes obtained through student ratings, then association between teachers' attributes and overall teaching effectiveness is found. It is seen that 48.05% and 34.81% of students rating overall teaching effectiveness under high and medium category respectively with 17.14 % under low category. In addition, all attributes were found to be positively correlated with overall teaching effectiveness. In light of the findings, recommendations were formulated for post graduate teachers regarding their teaching attributes as perceived by students.*

**KEYWORDS:** Teaching Effectiveness, Extension Education & Teachers Attributes

**Received:** Mar 24, 2019; **Accepted:** Apr 14, 2019; **Published:** May 04, 2019; **Paper Id.:** IJESRJUN20196

## INTRODUCTION

Extension Education has established itself as profession and discipline with three important components of teaching, research and service. Today in India, extension researches and teaching is being practiced by teachers and students in more than 61 State Agricultural Universities (SAUs), 4 Deemed to be Universities (DUs), 3 Central Agricultural Universities (CAUs) and 4 Central Universities (CUs) with Agriculture Faculty. The agricultural graduates up to the end of 1980 have found employment mainly in the State Departments of Agriculture. As public employment was available easily, static teaching methodologies fulfilled the need of students as well as employers, but when India signed General Agreement on Trade and Tariff (GATT) in 1994, this our agriculture into a framework of global market. This moved extension, beyond production and towards market led extension and knowledge management, therefore demanding different skills on part of students for getting jobs. Now,

organizations are looking for post-graduates with more rural management, communication and marketing skills. Many of these skills especially in areas of extension management, development communication and human resource management/training) are generally not present in the post-graduates passing out from agricultural universities since there is a weak link of curriculum to employment in private agribusiness and processing industries and meeting the demands of extension. The present curricula do not fully prepare extension students for acquiring those skills which are treated as prerequisites by job offering organizations. There is repetition of U. G. curricula, absence of specialization and lack of focus in existing curricula with lack of practical orientation (Sulaiman and van den Ban, 2000). Therefore, ensuring high teaching quality in agricultural education, an important concern in order to develop graduates with appropriate skills and attitude to take the fate of agriculture in the right direction which in long run would ensure food security for all (FAO, 2014). Today farmers need to know what to produce, when to produce, how much to produce, when and where to sell (export oriented or domestic market), at what price and in what form to sell their produce which demands a different set of skills in extension among professionals, which in turn can be inculcated with appropriate extension teaching methodologies. Agricultural social science requires a teaching methodology which is very different from the methodology that is followed at present but lecture based methods had dominated extension teaching (Blum, 1996). Thus, it's very important to know how effective is extension education teaching and how effectively teachers teach extension education in agricultural universities to inculcate desired competencies among students.

## **REVIEW OF LITERATURE**

### **Teaching Effectiveness**

Teaching effectiveness is a well-researched construct under various contexts (Berk 2013). Klausmeier and Goodwin (1966) reported that effective teachers have these important roles; help students to clarify objectives, motivates students, sequence the subject matter properly, guide in initial stages, understand and bridge individual differences, help students to evaluate their performance and helping students to apply knowledge. Dosjah (1977) reported that skills involve in effective teaching as introducing the topic, questioning, dealing with answers, stimulus variation, use of teaching aid, non verbal cues, reinforcement, use of illustrations and examples, lecturing, explanation, encouraging group discussions, planned repletion, teacher liveliness and closure.

### **Student Ratings of Teaching Effectiveness**

Student ratings are being widely used for evaluating teaching effectiveness (Chen & Hoshower 2003). The ratings are captured through a questionnaire which usually measures teaching behaviors and teaching style (Chen & Hoshower 2003). The prominent characteristics of student ratings include multidimensionality, stability and reliability, function of the instructor teaching the course instead of the course which is being taught, validity compared to other indicators, not easily impacted by potential biases, high utility of teachers, administrators, and researchers (Marsh & Bailey 1993). Overall, it provides a formative response to a faculty over its teaching pattern, course content, and classroom management (Chen & Hoshower 2003).

## **METHODOLOGY**

The study evaluates the teaching effectiveness of the university teachers of Extension Education discipline in agriculture. It is important to understand the traits and qualities of the teachers which are looked upon by the students as their strength of teaching whereas it is equally important to identify the segments of teachers' personality attributes and

pedagogical approaches where students are not satisfied. Thus, to evaluate the teachers' characteristics, their impact on students' learning and overall teaching effectiveness in extension education discipline, the following research questions of the study were designed

- What are the different categories of teachers based on scores of teachers attributes obtained through students ratings?
- Is there is an association between teachers attributes and overall teaching effectiveness?

### **Sampling and Location**

Agricultural universities in north zone were the universe of study, which comprises of 23 agricultural universities located in Jammu and Kashmir, Himanchal Pradesh, Punjab, Uttarakhand, Uttar Pradesh, Haryana and New Delhi. Ten agricultural universities from the above states were selected randomly where the present study was conducted. Selected universities constitutes Govind Ballabh Pant University of Agriculture and Technology, Pantnagar; Punjab Agricultural University, Ludhiana; Indian Agricultural Research Institute, New Delhi; Indian Veterinary Research Institute, Bareilly; National Dairy Research Institute, Karnal; Chaudhary Charan Singh Haryana Agricultural University, Hisar; Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Banaras Hindu University, Varanasi; Sam Higginbottom University of Agriculture, Technology and Sciences, Naini Prayagraj and Chandra Shekhar Azad University of Agriculture and Technology, Kanpur. All post graduate students (M. Sc. and Ph. D.) of the selected 10 agricultural universities were the respondents for the present study. Therefore, one stage cluster sampling was followed for present study. The sample size was 210 (n=210). A scientifically developed and pre-tested questionnaire was administered for the study.

### **Measurement of Variables**

Based on literature review and focus on grouped discussion, a total of eight attributes (seven teacher attributes and one attribute related to the course being taught) were identified for inclusion in the student evaluation questionnaire. It included teacher preparedness, pedagogy of the course, teacher's attitude towards students, teacher's attitude towards teaching, teacher's creativity, teacher's fairness, teacher's availability to students, and course characteristics. A self-administered questionnaire was designed to assess the agreement or disagreement of the students toward these attributes for all the teachers who had taken their classes during the course work of M. Sc and Ph. D. The instrument was rated on a five-point ordinal scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1 shows different items under teacher's attributes and course characteristics. Teacher preparedness consists of 5 items (item 1-5) with the maximum attainable score of 25 and minimum attainable score of 5, pedagogy of the course consists of 6 items (item 6-11) with the maximum attainable score of 30 and minimum attainable score of 6, teacher's attitude towards students consists of 4 items (item 12-15) with the maximum attainable score of 20 and minimum attainable score of 4, teacher's attitude towards teaching consists of 2 items (item 16 and 17) with the maximum attainable score of 10 and minimum attainable score of 2, teacher's creativity consists of 3 items (item 18-20) with the maximum attainable score of 15 and minimum attainable score of 3, teacher's fairness consists of 2 items (item 21 and 22) with the maximum attainable score of 10 and minimum attainable score of 2, teacher's availability to students consists of 3 items (item 23-25) with the maximum attainable score of 15 and minimum attainable score of 3, and finally course characteristics consists of 5 items (item 26-30) with the maximum attainable score of 25 and minimum attainable score of 5.

The dependent variable in overall teaching effectiveness was measured using the last three items (item 31-33) and the items measured on a 5-point Likert response format with anchors from 1 (strongly disagree) to 5 (strongly agree).

**Table 1: Items under Attributes of Teaching Effectiveness**

(n=210)

S. No.	Item	Attribute
1	The teacher prepares lecture schedule for students in the beginning of semester	Teacher Preparedness
2	The teacher regularly checks ups class attendance	
3	The teacher arrives on time and leaves on time	
4	The teacher is always well prepared for each class	
5	The teacher completes the whole course	
6	The teacher demonstrates good knowledge of subject	Pedagogy of the Course
7	The teacher utilizes the knowledge gained through wide reading to increase effectiveness to teaching	
8	The teacher delivers the subject matter effectively with clarity and coherence	
9	The teacher provides additional material apart from textbook	
10	The teacher give citations regarding current situation with reference to Indian context	
11	The teacher makes the best use of multi-media tools for effective teaching	Teachers Attitude Towards Students
12	The teacher is responsive to students questions	
13	The teacher is sensitive to students problems	
14	The teacher shows respect towards students and encourages class participation	
15	Teachers pays attention to all students irrespective of their abilities or personal characteristics	
16	The teacher has high enthusiasm	Teachers Attitude Towards Teaching
17	The teacher regards teaching as noble profession and has cultivated and imbibed a code of conduct, vocabulary and a disposition worthy of a noble profession	
18	The teacher is receptive to new ideas and disagreement	Teachers Creativity
19	The teacher is able in directing discussion	
20	Teacher identifies weakness and strengths of students and use it for future planning	
21	The teacher is fair in grading	Teacher's Fairness
22	The teacher returns and shows the graded scripts in reasonable amount of time	
23	The teacher is available during specified official hours and for after class consultations	Teacher's Availability To Students
24	The teacher organizes remedial teaching in order to overcome students' weakness	
25	The teacher extends full cooperation in co-curricular activities and makes constructive contribution for further improvement	
26	The syllabus clearly states course objectives, requirements, procedures and grading criteria	Course Characteristics
27	The course integrates theoretical course concepts with real world applications	
28	The assignments and exams covers the materials presented in course	
29	The course material is modern and updated	
30	The credit hours allotted to the course are sufficient	
31	The subject matter presented in the course has increased your knowledge of the subject	Overall Teaching Effectiveness
32	Overall, the teaching of the course is effective	
33	Overall, the teacher is one of the best and has essential teaching skills	

Teachers were categorized under high, medium and low on the basis of mean and standard deviation of scores obtained by totaling of item's scores under each attribute. Table 2 shows categorization criteria of teachers as high, medium and low on the basis of student rating on selected attributes.

**Table 2: Values for Categorization of Teachers as High, Medium and Low on the Basis of Student Rating on Selected Attributes**

S. No.	Attributes	High [Greater than (Mean + S. D.)]	Low [Smaller than (Mean – S. D.)]
1	Teacher's Preparedness	21.02	15.52
2	Teaching Pedagogy of the Course	24.00	16.10
3	Teacher's Attitude Towards Students	17.48	7.52
4	Teacher's Attitude Towards Teaching	7.55	3.79
5	Teacher's Creativity	11.37	4.19
6	Teacher's Fairness	8.75	4.73
7	Teacher's Availability To Students	13.15	8.71
8	Course Characteristics	21.17	12.15

(Medium category values lies between (Mean + S. D.) and (Mean – S. D.)

### Data Analysis

The data collected was analyzed using R program. Descriptive analysis used frequency and percentage for categorization of teachers on the basis of various attributes. Three types of data analysis were used: Pearson Moment Correlation, ANOVA and multiple hierarchical regressions to find associations of items and teachers' attributes with overall teaching effectiveness and to test the significance. The significance level was determined at probability levels of 1 % and 5%.

## RESULTS AND DISCUSSIONS

### Categorization of Teachers

It is evident from Table 3 that among all the attributes, four attributes namely teacher's fairness, teacher's preparedness, teacher's availability to students and teaching pedagogy of the course were ranked highest by students under high category. 57.61% of students rated fairness of teachers under high category followed by teacher's preparedness (51.90%), teacher availability to students (45.71%) and teaching pedagogy of course (43.33%). Also, the percentage of students rating these four attributes under low category was considerably less with teaching fairness at 10.47%, followed by teacher availability to students (20.00%), teacher preparedness (21.42%), and teaching pedagogy of course (24.48%). Thus, majority of students rated these four attributes under high and medium category when summed together; teacher's fairness (89.53%), teacher preparedness (78.58%), teacher availability to students (80.00 %) and teaching pedagogy of course (75.72%) and significantly lower number of students rated these attributes under low category. This indicates that majority of teachers prepare lecture schedules, regularly check up class attendance, arrive on time and leave on time, completes the entire course content, demonstrate good knowledge of subject, utilize the knowledge gained through wide reading, deliver the subject matter effectively, provide additional material, make efficient use of multi-media tools, and depict fairness in grading.

Table 3 also suggests that a lower number of students ranked the remaining four attributes (teacher's attitude towards students, teacher's attitude towards teaching, teacher's creativity and course characteristics) under high category and a noticeably higher number of students ranked them under the low category. The values for each of them depict so, course characteristics (29.52% and 38.57%), teachers creativity (27.61% and 45.23%), teachers attitude towards teaching (30.95% and 43.33%) and teacher's attitude towards students' (37.14% and 33.80%). This signifies that the students

believe that teacher's responsiveness towards student's questions, teacher's sensitivity, attentiveness and respect towards students, teacher's enthusiasm, teacher's receptiveness towards new ideas, teacher's ability in directing discussion are comparatively lower. It also signifies that majority of students believe that the given course does not completely integrate theoretical concepts with practical applications. Overall, majority (>50%) of students rated all attributes under medium category with 48.05% and 34.81% of students rating overall teaching effectiveness under high and medium category respectively with 17.14 % under low category.

**Table 3: Distribution of the Teachers as High, Medium and Low on the Basis of Student Rating on Selected Attributes using Frequency and Percentage Basis**

(n=210)

S. No.	Teachers Attributes	High		Medium		Low	
		Frequency	%	Frequency	%	Frequency	%
1.	Teacher's Preparedness	109	51.90	56	26.68	45	21.42
2.	Teaching Pedagogy Of Course	91	43.33	68	32.39	51	24.28
3.	Teacher's Attitude Towards Students	78	37.14	61	29.06	71	33.80
4.	Teacher's Attitude Towards Teaching	65	30.95	54	25.72	91	43.33
5.	Teacher's Creativity	58	27.61	57	27.16	95	45.23
6.	Teacher's Fairness	121	57.61	67	31.92	22	10.47
7.	Teacher's Availability To Students	96	45.71	72	34.29	42	20.00
8.	Course Characteristics	62	29.52	67	31.91	81	38.57
9.	Overall teaching effectiveness	101	48.05	73	34.81	36	17.14

#### Association between Effectiveness Attributes and Overall Teaching Effectiveness

Pearson correlation was computed between all attributes and overall teaching effectiveness to test for direction and strength of the correlation. All attributes were found to be positively correlated with overall teaching effectiveness. Table 3 shows Pearson correlation coefficients between all attributes and overall teaching effectiveness. Multiple regression analysis indicates that four attributes, teacher's preparedness, pedagogy of course, teacher's availability to students and course characteristics were significantly associated with overall teaching effectiveness at 0.01 % level. While four other attributes, namely; teacher's attitude towards students, teacher's attitude towards teaching, teacher's creativity and teacher's fairness were significantly linked with overall teaching effectiveness at 0.05 % level. Thus, it can be concluded that all attributes are significantly associated with overall teaching effectiveness Table 4).

**Table 4: Association between Attributes and Overall Teaching Effectiveness**

(n=210)

S. No.	Attribute	Mean	S. D.	Pearson Correlation Coefficient (r)	p Value
1	Teacher's Preparedness	18.27	2.75	0.31786	0.0046**
2	Teaching Pedagogy Of Course	20.05	3.95	0.22117	0.0085**
3	Teacher's Attitude Towards Students	12.50	4.98	0.10023	0.0353*
4	Teacher's Attitude Towards Teaching	5.67	1.88	0.19327	0.0311*
5	Teacher's Creativity	7.78	3.59	0.11287	0.0347*
6	Teacher's Fairness	6.74	2.01	0.13674	0.0258*
7	Teacher's Availability To Students	10.93	2.22	0.22563	0.0098**
8	Course Characteristics	16.66	4.51	0.18941	0.0019**

\*\*significant at 0.01 % level, \*significant at 0.05 % level

## CONCLUSIONS AND RECOMMENDATIONS

The post graduates of Extension Education discipline has to work at rural setting with developmental organizations, which demands professional skills to work at organizational level as well as grass root skills to work at rural settings. In order to inculcate these skills among post graduate students an overall teaching effectiveness is required on part of teachers. Thus in order to understand teaching effectiveness of the discipline 'extension education', the attributes of teachers were examined and teachers were categorized along with the association of teachers attributes with overall teaching effectiveness. The findings of the study are consistent with previous research, especially in case of support for teacher's preparedness (Darling-Hammond, Chung, & Frelow 2002; Darling-Hammond, Holtzman, Gatlin, & Vasquez Heilig 2005; Harper, Weiser, & Armstrong, 1990), teaching pedagogy of course (Ball, 2000; Roberts & Dyer 2004), teacher's attitude towards students, and teacher's attitude towards teaching (Blattner & Baldwin 2003; Murray 1983; Murray 1987).

It was found that teachers are performing better in the four attributes namely teacher's fairness, teacher's preparedness, teacher's availability to students and teaching pedagogy of course as compared to another four attributes namely teacher's attitude towards students, teacher's attitude towards teaching, teacher's creativity and course characteristics. Specifically, it was revealed that all attributes were found to be positively correlated with overall teaching effectiveness with four attributes; teacher's preparedness, teaching pedagogy of course, teacher's availability to students and course characteristics as the most significant (associated with overall teaching effectiveness at 0.01 % level).

Based on the conclusions from this study, some recommendations were formulated for teachers and teacher training institutions as teachers should consider all teachers' attributes and attempt to improve their performance in those attributes where students have perceived them to be comparatively low. Teachers can frame their individual teaching effectiveness framework from the outcomes of the present study and can use it as a cross reference for their overall preparation in all attributes, so that their teaching effectiveness can be further enhanced. Teacher training institutions should concentrate on teacher's attributes revealed by this study and should try to develop capacity of the teachers with regard to these attributes. Authorities in universities should include these attributes in their teacher's evaluation process and should generate relevant data to further investigate and improve the process of teacher's evaluation. Teachers should frame specific lesson plan for all courses and should use diverse teaching methodologies including problem solving approach, experiential learning methods, case studies, rural visits and sensitivity methods.

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